

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued November 16, 1999 December 21, 1999

No. 98-1525

Lignite Energy Council, et al.,
Petitioners

v.

U.S. Environmental Protection Agency,
Respondent

Natural Gas Supply Association, et al.,
Intervenors

Consolidated with
98-1529, 98-1533, 98-1541, 98-1543

On Petitions for Review of an Order of the
Environmental Protection Agency

F. Willam Brownell and William F. Pedersen argued the
cause for petitioners. With them on the briefs were Craig S.

Harrison, Jeffrey A. Knight, Harold P. Quinn, Jr., Gene E. Godley, Scott H. Segal, Brian R. Bjella, and Charles S. Miller, Jr.

Heidi Heitkamp, Attorney General, State of North Dakota, and Carmen Miller, Assistant Attorney General, were on the brief for amicus curiae the State of North Dakota.

Wendy L. Blake, Attorney, U.S. Department of Justice, argued the cause for respondent. With her on the brief was Lois J. Schiffer, Assistant Attorney General.

Armond M. Cohen was on the brief for amicus curiae Conservation Law Foundation, et al.

John H. Sharp, Michael R. Barr and Michael A. Conley were on the brief for intervenors.

Before: Edwards, Chief Judge, Silberman and Henderson, Circuit Judges.

Opinion for the Court filed Per Curiam.

Per Curiam: Petitioners challenge EPA's new source performance standards for nitrogen oxides emissions from utility and industrial boilers. We conclude that EPA did not exceed its discretion under section 111 of the Clean Air Act in promulgating these standards, and therefore deny the petitions.

* * * *

Fossil-fuel fired steam generating units ("boilers") emit nitrogen oxides (NOx), air pollutants that can cause deleterious health effects and contribute to the formation of acid rain. Section 111 of the Clean Air Act requires EPA to establish performance standards for the emission of NOx from newly constructed boilers; these "new source performance standards" are to be set at a level that

reflects the degree of emission limitation achievable through the application of the best system of emission

reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

42 U.S.C. s 7411(a)(1). In its 1990 Clean Air Act Amendments Congress specifically directed EPA to exercise its section 111 authority and establish new NO_x standards that incorporate "improvements in methods for the reduction of emissions of oxides of nitrogen." 42 U.S.C. s 7651f(c)(1).

In response to these statutory mandates, EPA promulgated a rule lowering its NO_x new source performance standards to .15 lb/MMBtu (pounds of NO_x emitted per million BTU burned) for utility boilers¹ and .20 lb/MMBtu for industrial boilers. See 63 Fed. Reg. 49,442, 49,443 (1998) (to be codified at 40 C.F.R. pt. 60). These standards reflect the level of NO_x emissions achievable by what EPA considers to be the "best demonstrated system" of emissions reduction: the use of selective catalytic reduction (SCR) in combination with combustion control technologies.² Petitioners' central claim is that EPA selected SCR as the basis for its NO_x standards without properly balancing the factors that section 111 requires it to "take into account." Because section 111 does not

1 To be precise, the emission standard for utility boilers is an output-based standard of 1.6 pounds of NO_x emitted per megawatt-hour of electricity generated. However, as this output-based standard was intended by EPA to correlate with a .15 lb/MMBtu input-based standard, we refer to its input-based equivalent for simplicity's sake throughout this opinion. We reject petitioners' argument that EPA's decision to shift to an output-based standard for utility boilers unfairly "penalizes" the use of low-energy coals, like lignite; it would seem just as easy to argue that an input-based standard "penalizes" high-energy fuels.

2 SCR is a "flue gas treatment technology"; it reduces NO_x after combustion by injecting ammonia into the flue gas in the presence of a catalyst, breaking down NO_x and producing nitrogen and water. In setting past standards, EPA had focused solely on combustion control technologies, which instead reduce NO_x by suppressing its formation during the combustion process. See 62 Fed. Reg. 36,948, 36,949-50 (1997).

set forth the weight that be should assigned to each of these factors, we have granted the agency a great degree of discretion in balancing them, see, e.g., *New York v. Reilly*, 969 F.2d 1147, 1150 (D.C. Cir. 1992); EPA's choice will be sustained unless the environmental or economic costs of using the technology are exorbitant. See *National Asphalt Pavement Ass'n v. Train*, 539 F.2d 775, 786 (D.C. Cir. 1976).

Petitioners argue that SCR is not the "best demonstrated system" under section 111 because the incremental cost of reducing NO_x emissions is considerably higher with SCR than with combustion controls. Recent improvements in combustion controls will enable many boilers to attain emissions levels close to EPA's SCR-based standards; accordingly, petitioners assert that EPA should have based its standards on these less expensive technologies. However, in light of

EPA's unchallenged findings showing that the new standards will only modestly increase the cost of producing electricity in newly constructed boilers, see 62 Fed. Reg. 36,948, 36,958 (1997) (proposed NOx revisions), we do not think that EPA exceeded its considerable discretion under section 111. Moreover, petitioners' argument stressing the comparable environmental merits of advanced combustion controls is to a certain extent self-defeating, since the new source performance standards set by EPA are not technology-forcing, and continuing advances in combustion control technologies will reduce the amount of NOx reduction that must be captured by the more expensive SCR technology.

It was also within EPA's discretion to issue uniform standards for all utility boilers, rather than adhering to its past practice of setting a range of standards based on boiler and fuel type. See, e.g., 44 Fed. Reg. 33,580 (1979) (establishing varying NOx emissions standards for utility boilers). Petitioners recognize that EPA is not required by law to subcategorize--section 111 merely states that "the Administrator may distinguish among classes, types, and sizes within categories of new sources," 42 U.S.C. s 7411(b)(2) (emphasis added)--but argue that it was arbitrary and capricious for EPA to decline to do so. EPA explains that its change to uniform standards is justified by SCR's performance charac-

teristics: Unlike the technologies on which past new source performance standards were based, flue gas treatment technologies like SCR limit NO_x emissions after combustion, and the effectiveness of SCR is thus far less dependent upon boiler design or fuel type. Petitioners respond that there are reasons to expect SCR to perform less adequately on boilers burning high-sulfur coals, but EPA collected continuous emissions monitoring data on two high-sulfur coal-fired utility boilers that showed that the .15 lb/MMBtu standard was achievable, and supplemented this study with similar evidence from foreign utility boilers. EPA also considered petitioners' concerns about the impact of alkaline metals on the performance of the catalyst used in the SCR process, and concluded that such "catalyst poisoning" is not a significant problem in coal-fired boilers. See 63 Fed. Reg. at 49,445. Mindful of the high degree of deference we must show to EPA's scientific judgment, see, e.g., *Appalachian Power Co. v. EPA*, 135 F.3d 791, 801-02 (D.C. Cir. 1998), we accept these determinations and sustain EPA's uniform standard for utility boilers.

Petitioners offer a broader challenge to EPA's .20 lb/MMBtu standard for industrial boilers, claiming that SCR is not "adequately demonstrated" for any coal-fired industrial boilers. EPA was unable to collect emissions data for the application of SCR to these boilers, but this absence of data is not surprising for a new technology like SCR, nor does it in and of itself defeat EPA's standard. Because it applies only to new sources, we have recognized that section 111 "looks toward what may fairly be projected for the regulated future, rather than the state of the art at present." *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 391 (D.C. Cir. 1973). Of course, where data are unavailable, EPA may not base its determination that a technology is adequately demonstrated or that a standard is achievable on mere speculation or conjecture, see, e.g., *National Asphalt Pavement Ass'n*, 539 F.2d at 787, but EPA may compensate for a shortage of data through the use of other qualitative methods, including the reasonable extrapolation of a technology's performance in other industries. See, e.g., *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1054 n.70 (D.C. Cir. 1978).

EPA has done precisely that here, concluding from its study of utility boilers that SCR is "adequately demonstrated" and the .20 lb/MMBtu standard is "achievable" for coal-fired industrial boilers as well. Utility and industrial boilers are similar in design and both categories of boilers can attain similar levels of NOx emissions reduction through combustion controls, which means that SCR will be required to capture comparable quantities of NOx for both boiler types. While petitioners argue that SCR is less likely to be effective on industrial boilers because they have widely fluctuating load cycles, EPA has shown that SCR can be successfully applied to coal-fired utility boilers under a "wide range of operating conditions" including those analogous to the load cycles of industrial boilers. 63 Fed. Reg. at 49,444. We think that it was reasonable for EPA to extrapolate from its studies of utility boilers in setting an SCR-based new source performance standard for coal-fired industrial boilers.³

We also sustain EPA's application of the .20 lb/MMBtu standard to combination boilers, which simultaneously combust a mixture of fuels. The preexisting NOx emissions standards established a range of values for combustion boilers that varied by fuel type: while combination boilers burning natural gas with non-coal solid fuels (e.g., wood) were subject to a .30 lb/MMBtu standard, the performance standards for combination boilers combusting coal with oil or natural gas were determined based upon the proportion of the boiler's total heat input provided by each fuel. See 51 Fed. Reg. 42,768, 42,790 (1986). It is difficult to understand petitioners' objection to the application of the industrial boiler standard to boilers burning natural gas and wood. A reduction of that standard from .30 to .20 lb/MMBtu is perfectly

³ For similar reasons, we do not think that EPA's lack of data on domestic SCR applications to boilers burning lignite renders its standards unlawful. In assessing a new technology like SCR, EPA is not required to provide evidence of its application to boilers burning every type of coal from every geographical location. It is acceptable for EPA to extrapolate from the successful applications of SCR to domestic high-sulfur coal-fired boilers and to foreign boilers burning lignite.

reasonable in light of the significant advances in NO_x emissions technology since 1986; indeed, EPA studies show that wood-fired boilers can reach emissions levels far lower than .20 lb/MMBtu through the application of flue gas treatment technologies. And our conclusion that the .20 lb/MMBtu standard is achievable for boilers burning only coal necessarily defeats petitioners' objection that the industrial boiler standard is unreasonable as applied to combination boilers burning coal simultaneously with other fuels with lower NO_x emissions characteristics.

Petitioners' final objection is to EPA's valuation of steam energy produced by "cogeneration facilities." EPA's adoption of an output-based standard for utility boilers raised the question of how to calculate the energy produced by these units, which generate thermal steam energy in addition to electrical energy. Steam energy produced by cogeneration facilities is exported for several different industrial uses; however, because of inefficiencies in transporting and converting steam, only a fraction of steam energy produced by cogeneration facilities is actually used in the industrial process. EPA resolved this problem by assigning a 50% credit for steam energy when determining a cogeneration unit's output. See 63 Fed. Reg. at 49,447. Petitioners describe this credit as an arbitrary and capricious "discounting" of steam energy's value, but it just as easily could be called a subsidy: The maximum efficiency for the conversion of steam to electrical energy is only 38%, and EPA's final rule justifies the 50% credit on the ground that it will encourage cogeneration. *Id.* In light of the difficulties that would attend calculating the useful energy of steam heat produced by cogeneration facilities on a unit-by-unit basis, we conclude that EPA's resolution of this issue was acceptable.

The petitions for review are denied.

So ordered.